

LINE-OF-SIGHT PUTTERS AND METHODS

FIELD OF INVENTION

The present invention relates generally to putters for use in the game of golf and more particularly to novel putters comprising at least one line-of-sight reflective member, and related methods, to teach and improve the putting game of golfers.

BACKGROUND

Golfers use putter golf clubs comprising a variety of shapes and sizes to putt golf balls across golf greens to golf holes. Putting is sometimes considered part of a player's so-called "short game" and often putting is the difference between a respectable and a poor score. Consequently, various forms of teaching techniques and training tools have been developed by experts in the field to train and retrain golfers in the best ways to execute a putt.

Few self-help tools have emerged, however, by which beginning, intermediate and advanced golfers can train, retrain and improve their respective putting skills. Of the tools available, few, if any, are integrated with the putter itself.

BRIEF SUMMARY AND OBJECTS OF THE INVENTION

In brief summary, the present invention overcomes or alleviates problems of the past by providing novel putters, and related methods, by which beginning, intermediate and advanced golfers are trained, retrained, corrected and improved in their respective putting skills in the game of golf.

With the foregoing in mind, it is a primary object to provide novel putters, and related methods, by which beginning, intermediate and advanced golfers are trained, retrained, corrected and improved in their respective putting skills in the game of golf.

It is another paramount object to provide novel line-of-sight golf putters, and related methods, to aid golfers to gain better putting skills.

It is a further object of the present invention to provide novel golf putters each comprised of a putterhead and at least one line-of-sight reflective member, and related methods, by which the putterhead and a golf ball are better aligned before a putt and the alignment is better retained during execution of the putt.

Another valuable object is the provision of a novel combination of a golf putterhead and a reflective member, and related methods, for better alignment between the putterhead and a golf ball before and during a putt.

These and other objects and features of the present invention will be apparent from the detailed description taken with reference to accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective of the hands of a golfer, a novel putter comprising a putterhead and a reflective member embodying principles of the present invention;

Figure 2 is an elevation with parts broken away for clarity of another putterhead embodiment comprising side-to-side adjustable reflective member;

Figure 3 is a fragmentary cross-section taken along lines 3-3 of Figure 2;

Figure 4 is a fragmentary cross-section of another putterhead embodiment by which the weight distribution of the putterhead, having a line-of-sight reflective member, can be adjusted;

Figure 5 is an elevation of an angular reflective member to optically improve the alignment between the putterhead and a golf ball to be putted;

Figure 6 is a cross-section taken along lines 6-6 of Figure 5;

Figure 7 is a top view of a curvilinear reflective member of a putter;

Figure 8 is a fragmentary cross-section of a putterhead and an angular light reflecting member for simultaneously viewing the ball and the hole;

Figure 9 is a fragmentary cross-section of a putterhead and a curvilinear light reflecting member;

Figure 10 is a perspective of another style of putterhead in combination with a rectangular light reflecting member having a fixed position on the putterhead;

Figure 11 is an enlarged fragmentary cross-section of a putterhead in combination with a fore and aft adjustable light reflecting member;

Figure 12 is a fragmentary perspective of another embodiment comprising a putter in combination with a shaft-mounted reflective member; and

Figure 13 is a fragmentary perspective of still another embodiment comprising a putter in combination with an adjustable shaft-mounted reflective member.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

It is recognized that golfers use putter golf clubs comprising a variety of shapes, sizes and weight as well as short and long handles to putt golf balls across golf greens toward golf holes or cups. Putting is a major part of a golfer's short game and often is the difference between golfing well and golfing poorly. Because of the importance of putting, a variety of forms of teaching techniques and training tools have evolved over the years, most of which are used by experts in the field to train and retrain golfers in the best ways to execute a putt.

There are, however, very few self-help putting tools which have come into existence for assistance to beginning, intermediate and advanced golfers. Contrary to the present invention, very few self-help tools for aiding golfers in improving their ability to putt have been made available, including but not limited to tools which are integrated with the putter itself.

The present invention overcomes or alleviates problems of the past by providing novel putters, and related methods, by which beginning, intermediate and advanced golfers are trained, retrained, corrected and improved in their respective putting skills in the game of golf. The improved putters comprise novel line-of-sight golf putters, and related methods, comprised of at least one reflective member by which a reflected image of the golf ball and the direct visual inspection of the putterhead enable better alignment both before a putt and during execution of the putt.

Reference is now made to the drawings wherein like numerals are used to designate like parts throughout. With reference to Figure 1, there is illustrated a novel putter, generally designated 20, by which improved alignment between a putterhead 34 and a golf ball 22 is obtained for displacing the ball 22 into a golf hole or cup 24 located on a golf green 26.

The novel putter 20 of Figure 1 comprises a proximal gripping handle 28 shown in the grasp of the hands 30 of a golfer. The putter 20 further comprises a conventional shaft 32 and the putterhead, generally designated 34.

The putterhead 34 comprises a conventional connector stem 36, joined to the distal end 38 of the shaft 32 in a conventional manner. The putterhead 34 comprises a strike surface 40, which impacts against the golf ball 22 during appropriate displacement of the putter 20 and which comprises one surface of a body of material 42. The body 42 comprises a pre-determined weight and size and a substantial pre-determined weight found suitable to the golfer.

The body 42 of the putterhead 34 comprises a recess defined in part by interface 44 in which the lower end 46 of a light reflecting member, generally designated 48, is snugly and securely inserted and retained in any suitable way. The reflective member 48 is shown as being flat or planar and comprising an exposed upper arcuate edge surface 50. The reflective member 48 comprises a surface 52 on which a linear index marking 54 is carried. The reflective member 48 is shown as being in a fixed position in Figure 1 forming acute angles in respect to both the horizontal and the vertical, the angle of inclination being selected to allow the eyes of the golfer to see the image of the golf ball 22 reflected from the reflective member 48.

The marking 54 assists the golfer in centering the putterhead 34 upon the golf ball 22 and in aligning the face 40 so as to comprise a plane perpendicular to a plane extending through the hole or cup 24, the golf ball 22, and the marking 54. The mark 54 also assists the golfer in maintaining the orientation of the putterhead 34 as the putter is retracted and displaced in a forward direction to strike the golf ball 22 toward the hole. Of course, when the green is sloped or undulated, the

mentioned alignment will be between the marking 54 and the ball 22 so as to be out of alignment with the cup 24 by an amount judged by the golfer to be appropriate.

Typically the putterhead 34 is comprised of metal, the shaft 20 of a hollow metal or graphite tubular material and the gripping handle 28 a high friction material accommodating a tight grip. The reflecting member 48 may comprise glass with a reflecting silver surface on the backside in circumstances where fragility is not an issue. The reflecting member may be of synthetic resinous material comprising a reflective layer. Further, the reflective member 48 may be formed of stainless steel, chrome or some other suitable metallic material by which the ball image or the ball image and the cup image are reflected to the eyes of the golfer.

Reference is now made to Figures 2 and 3 which illustrate a second putter embodiment, generally designated 60, implementing principles of the present invention. The putter 60 comprises a conventional shaft 62 connected at its distal end to a putterhead 64 comprising a top recess 66 in which a reflective member 68 is disposed at its proximal end 70 (Figure 3). Proximal end 70 is disposed in a U-shaped frame member 72. U-shaped frame 72 comprises an arcuate or curved lower edge wall 74, to accommodate side-to-side rotation of the reflective member 68, as indicated by the dotted lines in Figure 2.

As seen in Figure 3, the reflective member 68 is disposed at a suitable angle to both the horizontal and the vertical to accommodate reflection of the image of the golf ball by the reflective member to the eye of the golfer during use of the putter 60. Aligned apertures in both sidewalls of the U-shaped member 72 and in the lower end of the reflective member 68 accommodate both retention of the reflective member 68 in its assembled condition and forced rotation of the reflective member 68 to one side or the other to best suit the preferences of the golfer utilizing putter 60. The

fit between the U-shaped frame member 72 and the recess 66 is snug so that any manually set position of the reflective member 68 between extremes will be retained until overridden by manual force exerted by the golfer. A pin 76 passing through the above-mentioned apertures in the U-shaped member 72 and in the proximal end 70 of the reflective member 68 accommodating receipt of a pivot pin 76, the ends of which are anchored in opposed blind bores 78 of the putterhead 64.

Weight distribution preferences among golfers vary somewhat. With reference to Figure 4, a putterhead, in accordance with principles of the present invention and generally designated 80, may be equipped with any desired number of weight receiving blind bore cavities 82 for selective receipt of weights to achieve the desired amount of weight and weight distribution preferred by any given golfer. The weight placed in cavities 82 may be of any desirable type. For example, buckshot may be used. Each cavity 82 is illustrated as being cylindrical, but may be of any shape. Each cavity 82 is shown as comprising an enlarged diameter at threaded opening 84, into which a threaded cap 86 is screwed, preferably so as to be flush with the bottom surface of the putterhead 80. Each cap 86 is illustrated as having a notch or slot 88 disposed in the lower surface by which the cap 86 may be turned, using a screwdriver or like tool, to remove and tighten.

Preference is now made to Figures 5 and 6, which illustrate a further embodiment of the present invention comprising an angular member, generally designated 90, comprised of two angularly intersecting planar segments 92 and 94 defining a seam or interface 96 between the two. Thus, as shown in Figure 6, the golfer receives a dual reflection of the golf ball 22 in the course of putting, with the reflective member 90 attached to the putter being used. In this way, triangulation aids in creating a proper alignment between the putterhead and the golf ball 22 preparatory to and during execution of the putt.

Reference is now made to Figure 7 which shows a curved reflective member, generally designated 100 placed upon a putter (not shown) such that a plurality of reflections of the golf ball 200 from the reflective member 100 will reach the eye of the golfer to accommodate a modified form of triangulation to materially assist in establishing and maintaining alignment between the putterhead and the golf ball 22.

Figure 8 illustrates a further embodiment of the present invention comprised of an angular reflective member, generally designated 110, the distal end 112 of which is embedded and thereby secured at recess 114 of a putterhead 116, in a fixed relationship, whereby the image of the cup or hole is reflected to the eyes of the golfer from a lower segment 118 of the reflective member 110 and the image of the ball is reflected to the eyes of the golfer from reflective member segment 120. Thus, the golfer is able to see, at the same time, reflected images of both the hole and the ball to assist in proper alignment of the putterhead with both and execution of the putt.

The Figure 9 putter embodiment, generally designated 110', is similar to the embodiment of Figure 8 with the exception that the trailing end of the putterhead 116' has a somewhat different configuration and the segments 118 and 120 are connected by a curved segment 122 in lieu of the angular connecting segment 124 of the embodiment of Figure 8.

Reference is now made to Figure 10, which illustrates an additional putter embodiment, generally designated 130, in accordance with principles of the present invention. Putter 130 is very similar to putter 20 of Figure 1. The parts which are the same or substantially so are identified by the same numerals in Figure 10 as in Figure 1. The difference is that the marking 54 is not present in the embodiment of Figure 10 and the reflective member 48 is not secured at its proximal end in a recess putterhead. Rather the proximal end of the reflective member 48 is exposed at edge 132 and

the reflective member 48 is joined to the putterhead 34 by being suitably attached to a wedge-shaped connector 134, illustrated as being formed as one piece with putterhead 34.

Reference is now made to Figure 11 which illustrates a further putter embodiment in accordance with the present invention, generally designated 140. Putter 140 comprises a putterhead, generally designated 142. Putterhead 142 is illustrated as having a V-shaped notch 144 in the top thereof. Two internally-threaded collars 146 are integrally and non-rotatably connected to the top of the putterhead 142. A threaded shaft 148 threadedly engages the interior threads of each collar 146. The proximal endcap 150 of each threaded shaft 148 is integral and non-rotatable with the shaft so that when, using a screwdriver or the like, the heads 150 are rotated in one direction or the other, the associated threaded shaft with either advance or retract because of the threaded connection within the associated collar 146. Each threaded shaft comprises a distal tip 152.

The putterhead 142 is combined with a reflective member 154, the angular position of which may be adjusted, as shown by the dotted lines in Figure 11. The proximal end 156 of the reflective member 154 is encased within a U-shaped frame member 158, the base 160 of which rests at the bottom of the V-shaped recess 144. Thus, the base 160 forms a pivot location for selective adjustment in the angle of the reflective member. The distal tips 152 of the two threaded shafts 148 are adapted to contiguously engage the opposed side walls 162 of the U-shaped frame member 158 when the angle of the reflective member has been correctly set.

To adjust the angle of the reflective member 154 in respect to both the vertical and the horizontal, the golfer selectively rotates the two heads 150 so as to relocate the tips 152 in one direction or the other until the desired angle for the reflective member 154 is obtained, after which the threaded shafts 148 are tightened firmly against the sidewalls 162 of the U-shaped member 158.

It is to be appreciated that the side-to-side adjustment features of Figure 2 may be combined in a single embodiment with the angular adjustment features of Figure 11.

Reference is now made to the additional putter embodiment of Figure 11, generally designated 170. Putter 170 comprises a putterhead, generally designated 172, shaft 32 with lower end 38 and an upwardly directed connector stem, generally designated 174, which comprises a central somewhat cylindrical portion 176. The putterhead 172 may be of any desired shape, configuration, weight and thickness.

The putter 170 comprises a stationary reflective member 178 by which the image of a golf ball is reflected to the eyes of a golfer. Reflective member 178 is shown as being a planar, although other configurations could be used and is secured along the left side to end 180 of a coupler or clamp generally designated 182. Coupler 182 comprises a pair of flanges 184, which snugly encircle the cylindrical portion 176 of a connector 174 and clamp against the cylindrical portion 176 when the nut and bolt assembly 186 passing through apertures in the right portion of the flanges 184, as viewed in Figure 11, are tightened to clamp the right ends of the flanges 184 toward each other thereby fixing the position of the clamp 182 on the stem 176. Thus, the reflective mirror 178 is secured in a fixed position. However, the nut and bolt assembly 186 may be loosened and the coupler 182 along with the reflective member 178 moved up or down along the stem 176 to a higher or lower position, as may be desired by the golfer, and thereafter retightened.

Reference is now made to the putter embodiment of Figure 12, generally designated 190. Putter 190 is the same as putter 170 in Figure 11 and correspondingly enumerated, except for the explanation which follows. The putter embodiment 190 comprises a reflective assembly, generally designated 192 snugly secured by a collar 194 surrounding the vertically directed stem 176. Collar

194 may be stationary or, in the alternative, snugly associated with the stem 176 so that it may be manually displaced up and down by a suitable force to different elevations as may be desired by the user, without the risk of inadvertent displacement thereafter during use.

The collar 190 is integral with a socket 196 in which a rotatable ball 198 is disposed. A set screw 200 threadedly engages the housing defining the socket 196 and can be loosened or tightened away from or against the ball 198 to accommodate a change in the angular position of the reflective assembly 192 and to secure the desired position when it is obtained. The ball 198 comprises an exposed stem 202 integrally connected in a suitable way, such as by welding at interface 204, to a frame 206 surrounding the perimeter of a reflective member 208. The angle of the reflective member 208 in respect to the horizontal and the vertical is set or adjusted so that the image of a golf ball to be puttied is reflected from the reflective member 208 to the eye of the golfer to improve putterhead and golf ball alignment.

The invention may be embodied in other specific forms without departing from the spirit of the central characteristics thereof. The present embodiments therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

What is claimed and desired to be secured by Letters Patent is: